EXPLORING THE BANANA FIBER INTO HOME DÉCOR ITEMS

PROJECT SUBMITTED

In partial Fulfilment of the Requirement for the

award of the Degree

MASTER'S PROGRAMME IN FASHION DESIGNING

BY

ALAKANANDA

(Register No. SM22MFD002)

under the guidance of

MS. ROSE ELSA DERRIN

DEPARTMENT OF FASHION DESIGNING

WOMEN'S STUDY CENTRE

ST. TERESA'S COLLEGE (AUTONOMOUS)

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APRIL 2024

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DECLARATION

I, **Alakananda**, hereby declare that the project entitled **"Exploring the banana fibre into home décor item"** is submitted in partial fulfilment of the requirement for the award of the degree of Master's Programme in Fashion Designing. This record is an original research done by me under supervision and guidance of **Ms.Rose Elsa Derrin**, Department of Fashion Designing, St. Teresa's College, Ernakulam. This work has not submitted in part of fill or any other Degree, Diploma, Associateship/Fellowship of this or any other university

Name and signature of the Candidate Name and signature of the Guide

Place:

Date:

ACKNOWLEDGEMENT

I humbly thank **God Almighty** whose blessing enabled me to complete this venture successfully.

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ABSTRACT

This paper explores the utilization of banana fibre in the creation of home decor items, aiming to highlight its potential as a sustainable and versatile material. Beginning with an overview of banana cultivation and fibre extraction processes, it delves into the unique properties of banana fibre that make it suitable for various home decor applications. The paper examines existing research and case studies to illustrate the diverse range of products that can be crafted using banana fibre, from rugs and curtains to furniture and decorative accents. Furthermore, it discusses the environmental benefits of using banana fibre, including its biodegradability and renewability, as well as its economic implications for communities involved in banana cultivation. The paper concludes with recommendations for further exploration and integration of banana fibre into the home decor industry, emphasizing the importance of sustainable practices and creative innovation.

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INTRODUCTION

1.INTRODUCTION

The project Exploring with Banana Fibre into home décor, a Sustainable eco-friendly craft is Introduced. The craft has embossing innovative approaches to sustainability, with artisans and environmental advocates increasingly turning to alternative materials. One such eco-conscious option gaining traction is banana fibre, sourced from banana plant stalks. In this project, the development on an exploration of banana fibre's remarkable qualities and its potential applications, emphasizing its sustainability, versatility, and unique visual appeal.

The stem and pseudostem of the banana plant are used to obtain banana fibre, which is a naturally origin, biodegradable fibre. The main reason banana plant is grown is for their fruit, studies have shown that the pseudostem of the plant also consist with important fibre that may be extracted. The banana plant, which may grow up about to three meters tall, produces one of the healthiest natural fibres, it has discovered in variety of possible applications in the building textile, and paper sectors. According to extract banana fibre, the plant's stem must be stripped of its outer coverings contain long fibres fit for yarn. Sustainability of Banana Fibre, in a time when environmental issues are a major concern, banana fibre is emerging as a greener substitute for traditional textiles. In cultivation and manufacturing of cotton, which requires large amounts of water and chemicals, banana plants grow in a variety of settings with little help. Organic agricultural practices are frequently used in banana growth, which reduces the need for artificial fertilizers and pesticides. The craftspeople can diminish their impact on the environment and help to create more sustainable textile business by producing more banana fibre.

Banana fibre has been used historically for ages in areas where bananas are grown, mostly in tropical and subtropical climates. In the past, it was physically removed from banana plants and woven into fabrics used to make sarees and other garments. And it has high heat resisting capabilities. The manufacture of banana fibre offers a chance to maximize the use of every component of the banana plant as a utility product and limit environmental effects by utilizing the fibrous outer layer of the banana pseudostem, which is normally discarded after the fruit is harvested.

Appeal to the eye and adaptability beyond sustainability. Banana fibre yarns are versatile and may be used for a variety of projects due to their native strength and durability. Rising

handcrafted craftsmanship and organic beauty are inspired by the natural gloss and texture of banana fibre.

Banana fibre yarns also promote craftspeople to experiment with different techniques and designs because they come in a variety of hues and weights. Banana fibre gives a special depth to a variety of creative methods. Through the exploration of the timeless, artists may support a more responsible textile industry by utilizing the eco-friendly and aesthetic features of banana fibre. Its ultimate beauty and potential can be unlocked. The spirit of the original while presenting a novel angle on the investigation of banana fibre as a sustainable textile art form. Craftspeople promote environmentally friendly production methods and lessen the manufacturing industry's carbon footprint by using natural materials and eco-friendly processes.

Handmade goods have a distinctive appeal that appeals to people who value originality, individuality, and workmanship in an era characterized by mass production and conformity. Handmade items have a unique personality and charm that distinguishes them from their machine-made equivalents. They are expertly crafted by talented artisans. The realm of handcrafted goods, examining their skilful workmanship, cultural relevance, and enduring appeal in today's world. In human history, handmade objects have played a vital role, preserving customs passed down through the ages and showcasing the rich cultural diversity of many communities. Every handcrafted object, from carefully carved woodwork to delicately woven fabrics, tells a tale and bears the signature of the artist and the traditions that have influenced their trade.

Handmade goods need patience, careful execution, skill, and meticulous attention to detail. While handcrafted things are inspired by the artisan's personal touch and feature small faults that highlight their beauty and authenticity, mass-produced goods lack this personal touch. These flaws are embraced as hallmarks of uniqueness and artistry. Handmade goods are not just beautiful to look at; they also embody the values of ethical and sustainable consumerism. In addition to investing in high-quality products, consumers who support small-scale producers and artisans also help to preserve local economies and traditional crafts.

Natural materials and eco-friendly production techniques are frequently used in handmade goods, which is consistent with the values of social responsibility and environmental responsibility. The handcrafted goods are a welcome diversion from mass manufacturing and a platform for individuality and creativity. They stand for relationships to customs, culture, and human ingenuity. The timeless attraction of handmade goods serves as a reminder of the beauty

and significance of craftsmanship, community, and the human touch in an increasingly computerized and impersonal world. You are welcome to modify the wording or arrangement to better suit your writing style or area of interest (handmade goods).

This project introduces banana fibre exploration by various methods, which make sustainable, eco-friendly craft instead of synthetic materials. Also give awareness about natural's value and its uniqueness properties are used in creative way. The main aim of the project is to be contribute a sustainable and eco-friendly home décor items by the natural fibre. The exploration of banana fibre holds promise not for its environmental benefits but also for its potential socioeconomic implication. Banana fibre production could provide additional income opportunities for farmers and rural communities. Natural fibres are known to have good mechanical strength, properties and are lightweight and cost-friendly materials which makes them more desirable over synthetic fibre materials.

1.1 OBJECTIVES

- To contribute banana fibre in eco-friendly interior design and environmentally conscious lifestyle by utilizing a renewable resource.
- Give an awareness about the natural values and sustainability.
- To support and increasing communities where banana plants are cultivated.
- To give opportunities for unemployed women in low cost investment in creative way.
- Develop an eco-conscious society**.**

REVIEW OF LITERATURE

2. REVIEW OF LITERATURE

The review of literature for the project titled "**Exploring the Banana Fiber into Home Décor Items**" is discussed under the following heads:

2.1. sustainable

2.2. ecofriendly

2.3. synthetic textile

2.4. textile innovation

2.5 natural fibre

2.6 eco-friendly crafts

2.7 banana fibre

2.8 textile techniques

2.9 natural dyeing

2.10 handmade crafts

2.11ecofriendly home furnishing

2.12 women empowerment through craftmanship

2.1SUSTAINABILITY

A balanced approach to sustainability across three dimensions is ensured by an effective sustainable product design that also considers the practical features of the product. It emphasizes how the design process should incorporate sustainability considerations. In the early phases of sustainability consciousness, environmental concerns have an impact on product design and lead to the adoption of eco-design, or ecologically friendly, methods. As a result, numerous tools have been created over time to help product designers incorporate sustainability ideas into their designs, such as eco-design or Design for Environment tools.

sustainable development is indeed an organizing principle that seeks to balance human development goals with the preservation of natural systems and resources. Its goal is to ensure the needs of the present generation are met without compromising the ability of future generations to meet their own needs. This involves consideration of the factors such as economic, social, and environmental factors to create a more resilient and equitable society. (Ahmad, S., Wong, K. Y., Tseng, M. L., & Wong, W. P. (2018))

Ancient times, textile production methods have mainly not changed in principle. These methods including spinning yarn, weaving, knitting, braiding, felting, dying, printing, and sewing. Even so, environmental factors have also grown in significance in collaborating with customer needs. Every processing step in the textile production has an influence on the environment. Every stage in the production process, from the farming and processing of fibres to the textile and chemical industries, as well as the consumer lifespan of textile products and the recycling or disposal procedure, has an impact on the environment. The production, processing, and consumer use of traditional natural fibres such as cotton, wool, silk, and linen all have an influence on the environment. Similar to organic fibres, conventional synthetic fibres have an environmental impact because of the raw materials they use and how long they take to degrade. On the other hand, new developments in the manufacture of biodegradable synthetic fibres have encouraging prospects for sustainability, offering alternatives that could help to minimize the environmental effects of producing textiles through common means. (Palamuthu, S. (2017))

2.2 ECO FRIENDLY

The word "environment" as encompassing all external conditions and factors in which living organisms inhabit, affecting their biological processes. The term "ecosystem" refers to any natural area and its living organisms, including their interactions with each other and with environmental conditions, as well as the exchanges between living and non-living components. This definition focuses the introducing of all living organisms that constitute the environmental community. Communicating an eco-friendly lifestyle involves making conscious choices to prioritize both personal health and environmental well-being. Being self-aware and accountable for our actions is crucial in minimizing our ecological footprint and ensuring a sustainable future. By reducing pollution, conserving natural resources, and protecting wildlife, we not only fulfil our responsibility to the planet but also contribute to a healthier and more balanced ecosystem for all living beings. (Metwally, E. (2019))

The textile industry, which has existed for centuries, focuses primarily on the creation, production, and distribution of yarn, fabric, and garments, involving a variety of chemical and physical processes. Global attention has turned to environmental concerns associated with the industry due to the significant amounts of effluents containing various harmful agents and chemicals it produces. Enzymes have emerged as a promising solution to replace or reduce these hazardous substances. Enzymes such as amylase, cellulase, catalase, protease, pectinase, laccase, and lipase are commonly used in textile manufacturing processes. The enzymatic approach shows great potential as it is environmentally friendly, produces high-quality products, and contributes to savings in energy, water, and time. This bring out the importance of incorporating different enzymes into various stages of textile processing alongside traditional methods. (Kumar, D., Bhardwaj, R., Jassal, S., et al. (2023))

2.3 SYNTHETIC TEXTILE

The global textile industry significantly contributes to environmental pollution on a global scale, with fibre production developed to 105 million metric tons in 2018. As the demand also increases for clothing alongside population growth, the environmental impacts associated with textile manufacturing, usage, and disposal also increase. However, current methodologies and technologies are factors of environmental impact of textiles have limitations. They often focus only on the manufacturing process, neglecting potential impacts during product disposal and usage. Furthermore, these methods typically concentrate on visible environmental effects such as greenhouse gas emissions, energy, and water consumption, overlooking more cunning impacts on delicate ecosystems like freshwater environments. Synthetic fibre production involves the use of catalysts and reagents, resulting in the generation of various by-products. For instance, in the case of PET, some by-products are toxic and are efficiently removed, while others have low toxicity but are not effectively eliminated. Consequently, the relative risk associated with these compounds during this life cycle stage is moderate to low. On the other hand, the production of natural wool fibres poses a higher environmental risk, as it involves the use of pesticides. Many of these chemicals have been linked to widespread adverse effects on non-target organisms in freshwater ecosystems. (Cheng, S., Jessica, & Yoshikawa, K., Cross, J. S. (2024)).

2.4 TEXTILE INNOVATION

The textile industry exerts significant environmental impacts across the entire lifecycle of textile products. This chapter examines strategic approaches aimed at fostering environmentally sustainable consumption and production within the textile sector. Specifically, it delves into five phases of environmental sustainability: material sourcing, manufacturing, retailing, consumption, and disposal. The discussion highlights key concepts such as corporate social responsibility, green supply chain management, and eco-design as essential considerations for implementing environmentally sustainable business practices. It emphasizes the importance of all stakeholders, including consumers, manufacturers, supply chain entities, and retailers, taking proactive measures to promote environmental protection in both the production and consumption of textile products (Lee, K. E. (2017)

The entrepreneurial small-scale labels that share an artisanal approach to fashion design and production. The approach bridges fashion and artisanship by integrating skilful design and craftsmanship in the context of contemporary fashion. In this study, artisanal fashion is understood as "skilful materiality", which signifies the artisanal qualities of the design and production processes such as skilfulness, craftsmanship, and materiality, and recognizes the integrated role of the artisanal designer. (Van Dai Nguyen, Thi Tuyet Mai Nguyen & Quynh Hoa Nguyen. (2023))

2.5 NATURAL FIBRE

Environmentally friendly and renewable materials, whether partially or completely biodegradable, offer a pathway to create new high-performance polymer materials. The composites boast satisfactory mechanical properties, rendering them more appealing compared to other. They ready availability and renewable nature, natural fibres present a viable substitute for synthetic fibres as reinforcement agents. The cultivation of natural fibres often supports economic activities in regions where they are grown, providing livelihoods to millions of people. Approximately 60 million families are directly involved in natural fibre production. However, the rise of synthetic fibre alternatives threatens the natural fibre industry. To sustain competitiveness, ongoing technological advancements including directed breeding, mechanization, synthetic fertilizers, plant protection chemicals, and genetic engineering tools must be pursued and implemented within the natural fibre sector. (Townsend, T. (2020)).

Natural fibres material produced through photosynthesis process, have been substantial studied for their mechanical properties and classifications. These fibres, also known as vegetable fibres, originate from primary plants cultivated specifically for fibre content or secondary plants where fibres are obtained as by-products. Examples of primary plants include jute, hemp, kenaf, sisal, and cotton, while secondary plants includes pineapple, cereal stalks, agave, oil palm, and coir. The most common classification for natural fibres is by botanical type. Using this system, there are six basic types of natural fibres, bast fibres, leaf fibres, seed fibres, core fibres, grass and reed; and all other types such as wood and roots. scholarly works about natural fibres mechanical characteristics. The mechanical qualities of natural fibres are influenced by numerous factors. The density of the entire fibre rather than just the fibre cell wall, is defined by the density data. The cell wall density of every natural fibre is roughly 1.5 g/m3. The physical characteristics vary greatly based on the type of fibre. Bast fibres are typically the strongest. (Rowell, R.M. (2008)).

2.6 ECO FRIENDLY CRAFTS

India's rich cultural diversity and heritage serve as a vast and distinctive resource for crafting artisanal products. Renowned as a major supplier of handicrafts to the global market, the industry mainly thrives in rural and urban areas, characterized by its labour-intensive and separated cottage-based nature. Many artisans engage in craftwork on a part-time basis, while various governmental and non-governmental organizations actively create income opportunities for them. Some of these initiatives focus on women's empowerment, offering training programs to foster self-reliance and independent learning among women. In the contemporary context of sustainability debate, the handicraft sector increasingly emphasizes eco-friendly and sustainable practices. Environmental craft presents a compelling solution in this regard, being biodegradable, renewable, and sourced from agricultural by product. A significant portion of India's handicraft industry is centred around natural fibres, which are used by many craftspeople to create their products. Information gathered from varied sources provided insight into the procedures and techniques used to create these items. Craftspeople promote environmentally friendly production methods and reduces the manufacturing industry's carbon footprint by using natural materials and eco-friendly processes. With their goods handcrafted. Increasing number of Indian artists and handicrafts have embraced the idea of eco-friendly fashion and helped to lessen their influence on the environment. Given the growing demand for eco-friendly items worldwide, natural fibres are heavily incorporated for the use in handcraft production. (Bhoj, R. (2022)).

2.7 BANANA FIBRE

In developing world, the growing concern over environmental pollution and the conservation of non-renewable, non-biodegradable resources has stimulate researchers to explore the development of new eco-friendly materials and products grounded in sustainability principles. Fibres derived from natural sources offer indubitable advantages over synthetic reinforcement materials, including low density, low cost, non-toxicity, comparable strength, and minimal waste disposal issues. In the research, it focuses on preparing banana fibre-reinforced epoxy composites and evaluating their mechanical properties. Using the hand lay-up process, composite samples with varying fibre volume fractions were fabricated and subjected to mechanical testing, including tensile, flexural, and impact loading, all conducted at room temperature. (Ramesh, M., Sri Ananda Atreya, T., Aswin, U. S., Eashwar, H., & Deepa, C. (2014)).

Banana fibres serve as to encouraging synthetic materials commonly utilized in modern society, advocating for their increased adoption. These organic fibres are safe for the environment and biodegradable. There is a lot of room for use because India has almost 5 million hectares set aside for banana production. But the process of extracting natural fibres is labour-intensive, and the finished product's quality can differ greatly depending on the extraction technique used. In response, a machine designed to extract banana fibre has been created to optimize the extraction procedure, thereby decreasing the duration and improving the final product's quality. Though less well-known than other natural fibres, banana fibre has a rich history in areas where banana farming is prevalent. Banana plants were originally valued primarily for their fruit, with their fibrous stalks receiving little consideration. However, communities in tropical areas like Southeast Asia, Africa, and South America recognized the value of these fibres for textiles. (Shinde, P., Magade, P., & Magade, S. B. (2022)).

Banana fibre can be used as reinforcement with other natural fibres to enhance its unique properties and create products based on a polymer composite reinforced with natural fibres. According research and analysis about the fibre, thermal properties and dynamical behaviours of composite materials containing hybridized banana and other natural fibres. (Thandavamoorthy, R., Devarajan, Y. & Kaliappan (2023)).

2.8 TEXTILE TECHNIQUES

In the journal of cotton says that numerous countries, including India, have implemented rigorous ecological standards for the textile industry. As expectations for even stricter controls grow, it becomes imperative to enact measures that mitigate effluent-related issues. Industrial textile processing encompasses various stages such as pre-treatment, dyeing, printing, and finishing, all of which not only consume substantial amounts of energy and water but also generate significant waste products. This manuscript explores textile processes such as desizing, mercerizing, bleaching, dyeing, finishing, and printing, alongside advanced effluent treatment methods like electro-oxidation, bio-treatment, photochemical, and membrane processes. The textile dyeing sector is a major consumer of water and generates large volumes of wastewater during dyeing and finishing operations. Effluents from printing and dyeing units often contain colour residues, reactive dyes, and chemicals, necessitating proper treatment before discharge into the environment. The adverse effects of dyestuffs, organic compounds, acidic, and alkaline contaminants from industrial sites on public health are widely acknowledged. Concerns about environmental issues have led to the closure of numerous small-scale industries. There is a growing interest in ecologically friendly wet-processing techniques due to heightened awareness of environmental issues globally. Consumers in developed nations are increasingly demanding biodegradable and eco-friendly textiles. While cotton is considered an environmentally friendly textile, over 50% of its production volume is dyed using reactive dyes, which pose ecological challenges due to heavily coloured effluents with high salt concentrations and elevated biological oxygen demand/chemical oxygen demand values. Stringent ecological standards are applied throughout the textile dyeing process, from raw material selection to the final product. This has become even more crucial since the implementation of German environmental standards for dye effluents. The primary challenge facing the textile industry today is to transition to production methods that are more environmentally friendly while remaining cost-competitive. This involves the use of safer dyes and chemicals and reducing the cost of effluent treatment and disposal. Recycling has become indispensable not due to resource shortages but to control pollution.

Technology entails applying knowledge to practical needs. Green technologies encompass various technological approaches aimed at reducing human impact on the environment and fostering sustainable development. Key parameters for green technologies include social equity, economic feasibility, and sustainability. Currently, the environment is

approaching a critical tipping point, where irreversible damage to the planet Earth becomes a real possibility. Our actions are propelling the world towards an ecological crisis, making destruction seem inevitable. Green technology provides a way to lessen these dangers. But it's important to weigh the advantages and disadvantages of green technology carefully. Green technology makes use of naturally replenishable resources that don't run out over time. It makes use of cutting-edge methods for producing energy, such as green nanotechnology, which combines green chemistry and engineering. Green technology also addresses waste disposal, a major source of pollution in the environment. Green technology reduces damage to the environment by changing manufacturing techniques and waste patterns. This encourages ecologically beneficial behaviour. Green energy, organic farming, eco-friendly textiles, green building construction, and the production of associated goods and materials to promote sustainable business practices are among the industries predicted to see growth and innovation in green technology. It is projected that as this industry grows, more clients will come in who understand the benefits of implementing green technologies in their residences and places of business. Green energy sources are those that can be renewed over time and have little negative impact on the environment, such as solar electricity and other renewable energy sources like wind and hydroelectric power. Future generations can profit from these technologies without endangering the environment any more. This essay focuses on the potential advantages and benefits of green technology. (Soni, G. D. (2015)).

2.9 NATURAL DYEING

In the recent years, there has been extensive exploration of colorants derived from natural sources such as plants, insects/animals, and microbes, aimed at their utilization in various applications. Research efforts have focused on identifying new sources of natural dyes and developing eco-friendly, robust, and cost-effective technologies for their processing and application. These endeavours have significantly expanded the potential applications of natural dyes across both traditional and advanced disciplines. Research conducted over the past 15 years (1998–2013) has explored various aspects of natural dye applications, with particular emphasis on technological improvements in natural textile dyeing. Additionally, studies have investigated the use of natural dyes in functional finishing of textiles, food colouring, and dye-sensitized solar cells. This approach has contributed to a deeper understanding of the properties and potential applications of natural dyes across diverse fields. (Shahid, M., Shahid-ul-Islam, & Faqeer Mohammad. (2013)).

In online article science direct, stated that A fresh approach was explored to enhance the dyeing characteristics of cotton knits using natural dyes, aiming to bolster both UV protection and antimicrobial properties of the resulting dyed fabrics. The study examined several aspects that impact the dyeing process and multifunctional characteristics of the treated substrates. These elements included the kind and concentration of the mordant, the type and concentration of natural dye extract, the dyeing conditions, and the fabric structure. Synthetic dyes used in traditional textile dying pose serious health and environmental hazards to both the dyers and the finished product. Because of their compatibility with the environment, allergenicity and low toxicity, and availability from a variety of natural sources, including plants, insects, minerals, and fungi, natural dyes have consequently seen a noticeable increase in popularity. Less attention has been paid to investigating the additional uses of natural dyes, despite significant efforts being made to comprehend their basic qualities and enhance their colour fastness, especially washing and light fastness, using different metallic mordants while taking ecological concerns into account. Among these are defences against microbiological development and UV radiation from the sun. As per the open-science online publication, there was a notable decrease in the use of natural dyes for textile dyeing after the development of synthetic dyes in 1856. As a result, natural dyes were mostly ignored in the beginning of the twentieth century as the cost of synthetic dyestuffs dropped. Because synthetic dyestuffs became more affordable at the start of the twentieth century, natural dyes were mostly ignored. Currently, the overuse of synthetic dye roughly 10,000,000.00 tons annually leads to the creation and application of enormous volumes of waste and unfixed colorants, which disrupts the natural ecological balance and poses major health risks. In light of contemporary economic and environmental consciousness, this field's research ought to focus on the use of natural dyes to colour textile fabrics. This article offers a thorough overview and analysis of a number of topics pertaining to the use of natural dyes to colour textile materials. These topics include appropriate textile material categories, equipment for use in home and small-scale commercial natural dyeing, process extraction and mordants, conventional and unconventional natural dyeing techniques, and the colour fastness characteristics of natural dyes. This thorough investigation seeks to clarify the advantages of using natural dyes instead of synthetic ones when dying textiles. It also addresses the drawbacks of using synthetic dyes and emphasizes the advantages of using natural dyes.

2.10 HANDICRAFT PRODUCT

Making items that exude happiness and good vibes is the art of handmade. Handmade very diverse, anyone can find activities for the soul, decorate your home, unusual things. All operations are performed attentively, carefully, which results in high quality products. Everything made by hand carries an idea, the warmth of the author's hands, a piece of his soul. the term hand-made literally these are things created by hand. The effect is achieved due to the fact that handmade is done only people who really love this business. Currently the most popular types of handmade textile techniques are the following:

- ✓ crocheting or knitting
- ✓ drawing and painting
- ✓ felting and braiding

Textile classification systems historically categorized looped structures as knitting without distinguishing between knitting and crochet, leading to confusion in identifying crochet in early printed sources. However, crochet can be identified in these instructions through the mention of a single hook, a characteristic tool for crochet. While looping techniques can be executed without tools, specific forms of crochet-type looping rely on the design of hooks. Examining the typology of these implements helps trace the evolution of crochet precursors into the craft we recognize today.

Indeed, crochet is a craft that originated in the 19th century, evolving from a type of chain-stitch embroidery that utilized a hook instead of a needle. Unlike traditional embroidery, crochet creates a textured fabric using loops and interlinked chains of thread, without the need for a foundation material. During the late 1840s, crochet was introduced in Ireland as a means of famine relief. It became a significant industry, particularly in Cork in southern Ireland and Clones in County Monaghan in Northern Ireland. Over time, crochet techniques became more refined, leading to the creation of intricate designs that resembled antique laces such as gross point de Venise, or Venetian raised lace. This evolution allowed crochet to become a versatile and widely appreciated form of textile art. (Karp, C. (2018)).

2.11 ECOFRIENDLY HOME FURNISHING

One of the comfort living is eco-friendly interior, the present study aims to understand the requirements of the consumers, and their preferences, buying behaviour customer, their eco-concerns & consumer satisfaction. The comfort living is where there is a need for a change

in the existing home furnishings with particular synthetic finishes. Today consumers seek more variety, functionality, luxurious feel and innovative features. There is a market demand for performance emphasise and value-added items. (Tulshyan, A., & Dedhia, E. (2018)).

The term eco-design is combination of the word's ecology and design. Eco-design is the design interchangeable for the environment, both of the process of, comprehensive pattern engaged in human designs, flows, procedures, and physical situation in nature in a careful and compatible way. Eco-design refers new approaches to design a product and presents a new framework and defining them to developing eco-friendly products. The main aim of eco-design is to reduces the environmental impact of the lifecycle of that product. Eco-design has many other advantages such as cost reduction, creates of innovation, and minimize the environmental costs and liabilities in the future. (Guzel, T. A. (2020))

2.12 WOMEN EMPOWERMENT THROUGH CRAFTMANSHIP

The statement delves into how certain ideas are being reconsidered, especially with the recent revival of craft, notably in textiles and among independent crafters and activists. While these individuals acknowledge feminist histories and practices, they don't feel constrained by them. Additionally, handcrafting can be seen as a way to challenge traditional domestic roles, promoting empowerment through collaborative work spanning various disciplines, social media, and public involvement. Today, there's a new wave in the crafts community, driven by social media and a revived interest in the political aspects of crafting, although not necessarily conforming to crafting of politics. (Jefferies, J. (2016))

Craft-making has remained popular for generating income, but in recent years, it's also become a leisure activity practiced by both men and women in contemporary Western culture. Leisure and recreation are acknowledged as potent forces for enhancing social, economic, and environmental well-being within communities. Engaging in crafts provides a platform for experiencing positive emotions and contributes to self-definition, self-actualization, and empowerment. For women, involvement in arts and crafts not only offers social benefits but also has the potential to positively impact health. Moreover, craft-making can be economically beneficial. Many craft-makers create products for exhibition and sale, while others collaborate with creative businesses to develop unique work. Economic independence plays a crucial role in measuring women's social empowerment. (Malema, D. R., & Naidoo, S. (2017)).

METHODOLOGY

3. METHODOLOGY

3.1 CONDUCTED A SUVERY FOR SELECTING FINAL PRODUCTS TO BE DEVELOPED

3.2 DESIGNING THE PRODUCT SKETCHES

3.3 EXCTRATION OF BANANA FIBRE

3.4 DYEING THE BANANA FIBRE WITH NATURAL INGREDIENCE

3.5 PRODUCT DEVELOPMENT

3.6. EMPOWERING HOMEMAKERS

3.1 CONDUCTED A SUVERY FOR SELECTING FINAL PRODUCTS TO BE DEVELOPED

A survey is conducted to collect the information from audience to finalising the products to be produced. And in 70 responses, most suggested three products are wall-hangings, rugs and table mate.

3.2 DESIGNING THE PRODUCT SKETCHES

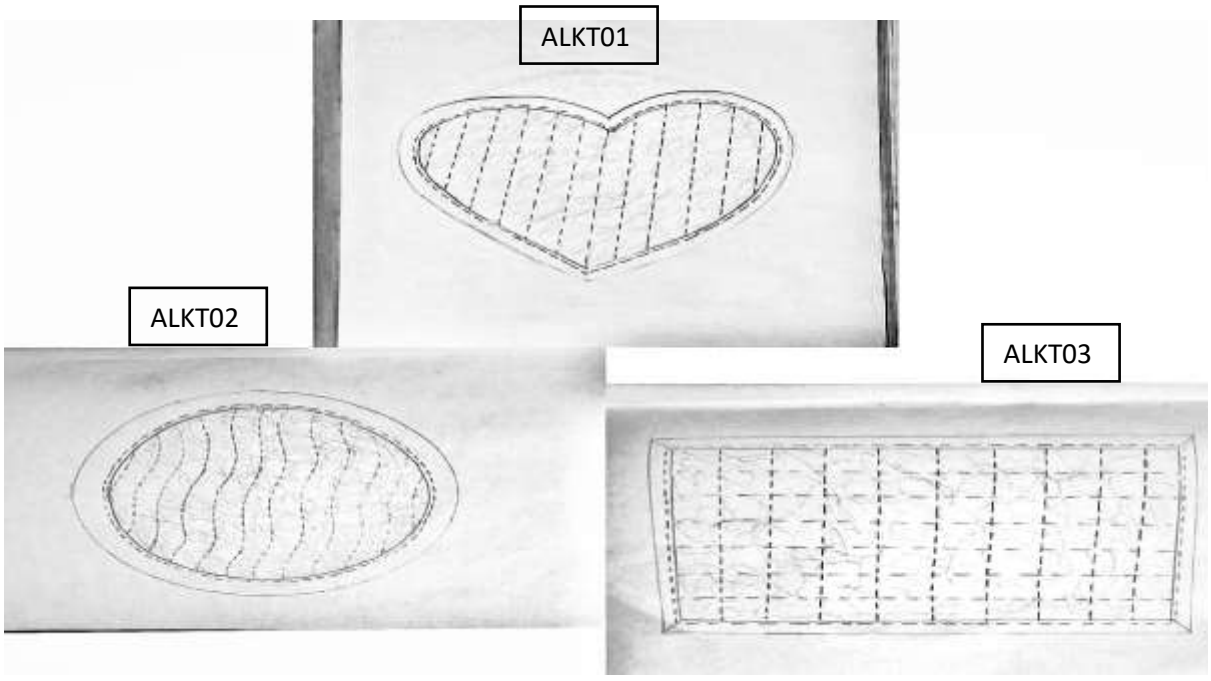


Fig No: 1
TABLE MAT DESIGNS

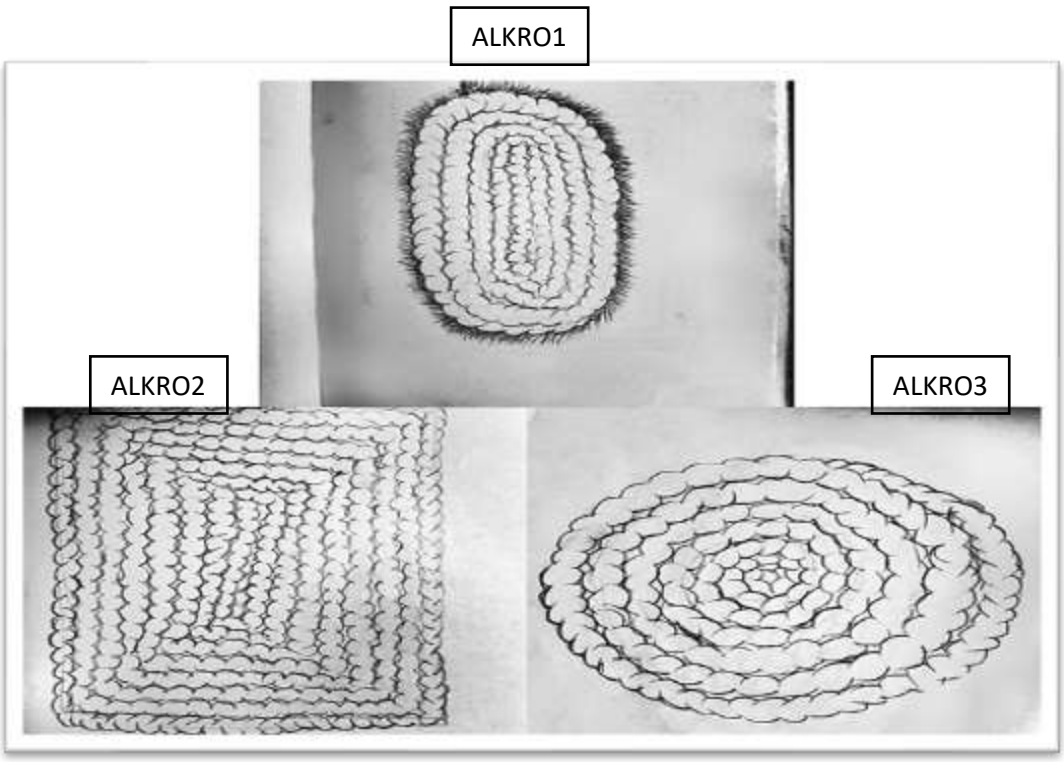


Fig No: 2
RUGS DESIGNS

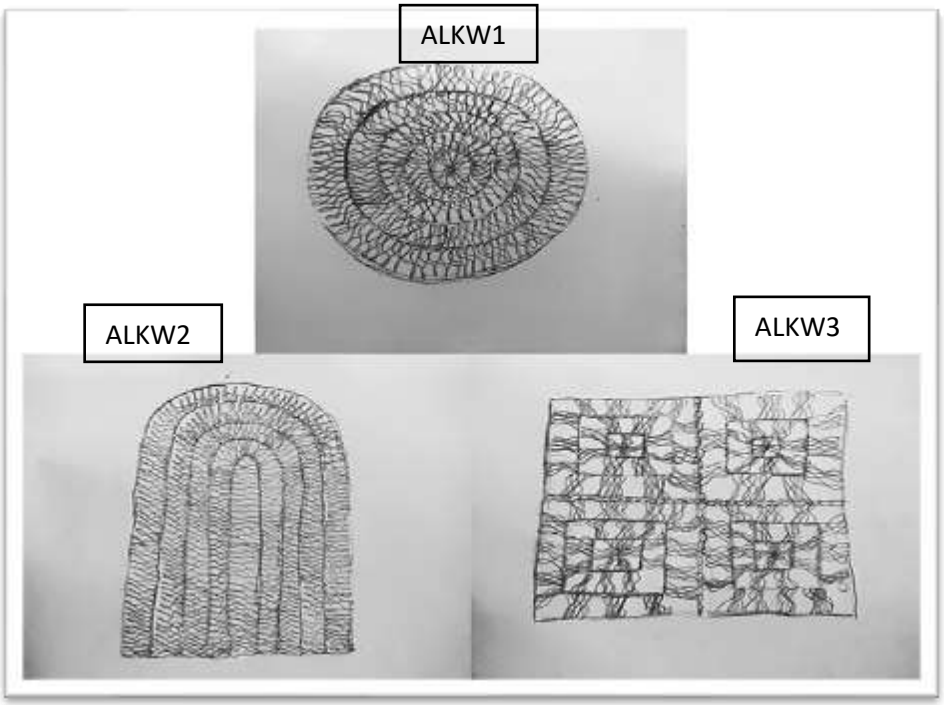


Fig No: 3
WALL HANGING DESIGNS

3.3 EXCTRATION OF BANANA FIBRE

After harvesting the banana cut down the pseudostem plant with required length. The leaves are removed then it goes under stripping process, here the out layers are stripped away to expose the fibre underneath. After that scraping, it processes of removal of pulp and flesh to define the fibre. Fibres are extracted by scraping it again and again. The number of fibres is depended on the type of pseudostem plant. The slim banana plants give more fibre compared to the thick one. After these processes the fibre visible then it is extracted and it is dried under the sun shadow. Direct drying under the sunlight it occurs wrinkled of fibres. From the banana plant approximate 1kg fibres are extracted.

Plate 1
Harvesting the plant

Plate 2
Removing the leaves

Plate 3
Stripping

Plate 4
Scraping

Plate 5
Fibre Visibility

Plate 6
Extraction of fibre

Plate 7
Fibres

Plate 8
Drying

3.4 DYEING THE BANANA FIBRE WITH NATURAL INGREDIENCE

The fibres are dyed with natural substances, and food colour coffee, beetroot and turmeric. The fibres soaked in the dye solution for 20 minutes. And little fibre dyed with food colour. After that rinsing and dried it in the shadows.

Plate 9
Dyeing

Plate 10
Drying

After three weeks the dyed colour become faded and it has tendency to gain the natural original colour.

3.5 PRODUCT DEVELOPMENT

3.5.1 PRODUCT - 1

The first product is table mat and the material required for developing the first product are thread, banana fibre, ball- pins, cloth, newspaper and sewing machine for connect the fibre by giving stitches. And the fist step is spread the banana fibre in required length and width on the newspaper. Then put a newspaper on the banana fibre as same size to make like a sandwich form after that give the cross stitches through the newspaper to connect the fibres together, Remove the newspaper. And trim the side to get proportionated figure and give borders by cloth.

Plate 11
Adding piping to the product

Plate 12
stitching

3.5.2. PRODUCT-2

The second product is floor mat, and required materials are banana fibre, thread and needle. The banana fibres braided with three strands and braided banana fibres are joined in oval shape in required shape. And on banana strands give tassels in alternative colours as the edge.

3.5.3. PRODUCT-3

To developing the third product crochet method were used. And the materials required for developing the product are crochet needle and banana fibre. Granny squares are used to make the product.

Plate No: 13
Doing crochet

3.6. EMPOWERING HOMEMAKERS

Conducted an awareness programme to empowering women. engaging in crafts provides a platform for experiencing positive emotions and contributes to self-definition, self-actualization, and empowerment. In this programme 10 of women were participated. And they are highly interested towards the product.

Plate No:13
Awareness programme

RESULT AND DISCUSSION

4. RESULT AND DISCUSSION

The result obtained from the study are discussed under the following headings:

4.1 RESULT OF THE SUVERY FOR SELECTING FINAL PRODUCTS TO BE DEVELOPED.

4.1.1 SURVEY QUESTIONS WITH RESULT

4.2 DESIGN DEVELOPMENT

4.3 FINAL PRODUCT

4.4 EVALUATION OF DEVELOPED PRODUCTS

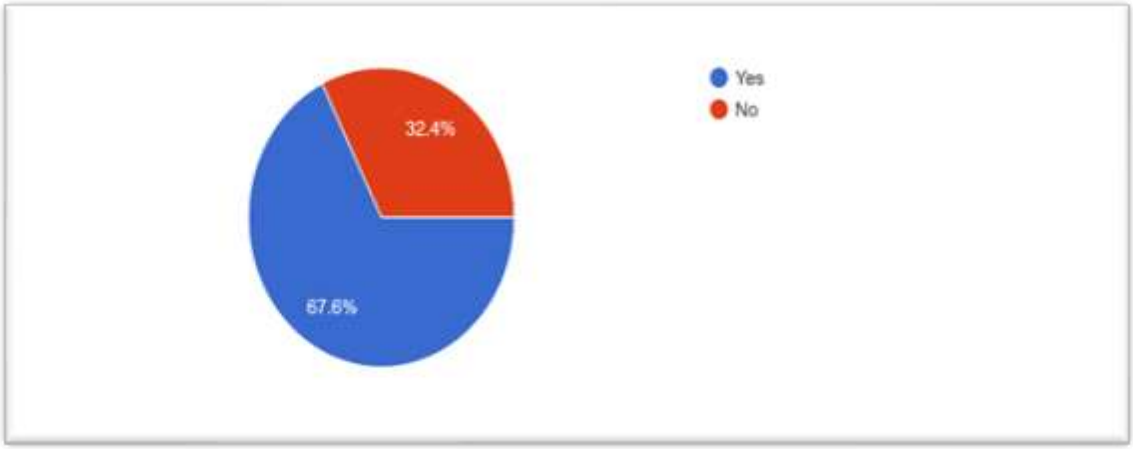
4.5 COSTING OF THE DEVELOPED PRODUCTS

4.1 RESULT OF THE SUVERY FOR SELECTING FINAL PRODUCTS TO BE DEVELOPED.

A survey is conducted to collect the information from audience to finalising the products to be produced. And in 70 responses, most suggested three products are wall-hangings, rugs and table mate. Based on survey analysis the 70 people who are in different age group, and gets the result as the 67.6% are familiar with banana fibre.

4.1.1 Survey Questions with Result

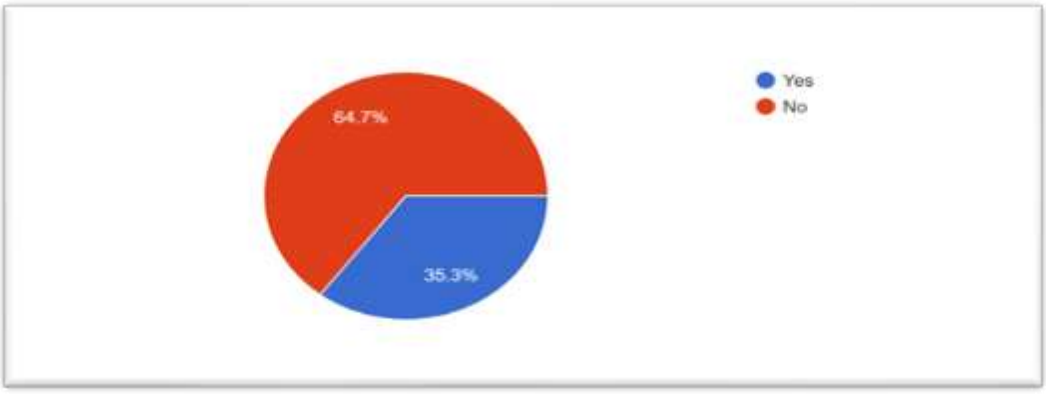
- How familiar are you with banana fibre as a material?



Graph 1
Popularity of Banana Fibre

68% of respondent who never used any products made from banana fibre

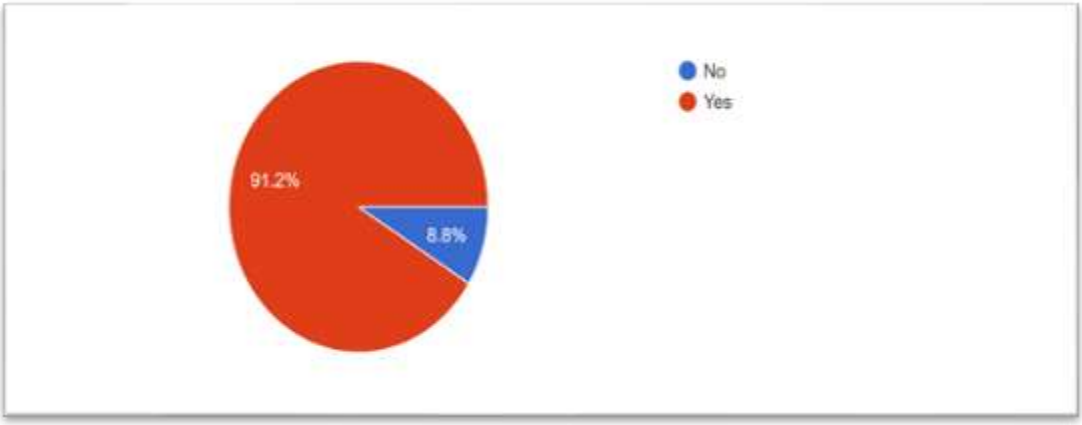
- **Have you ever used or owned any product made from banana fibre?**



Graph 2
Usage of Banana fibre Product

91.2% respondent are interested on using the product as home decor item.

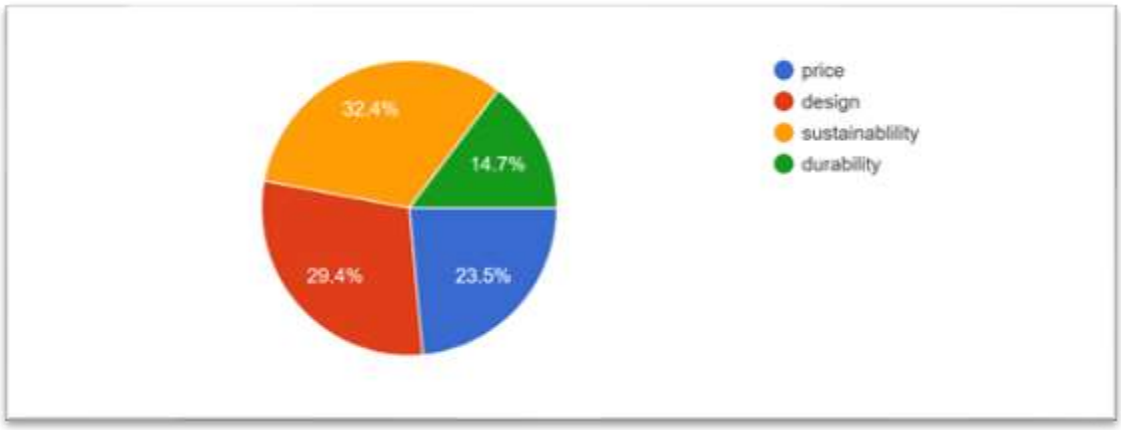
- **Are you interested in eco-friendly or sustainable home decor items?**



Graph 3
Interest on Ecofriendly Products

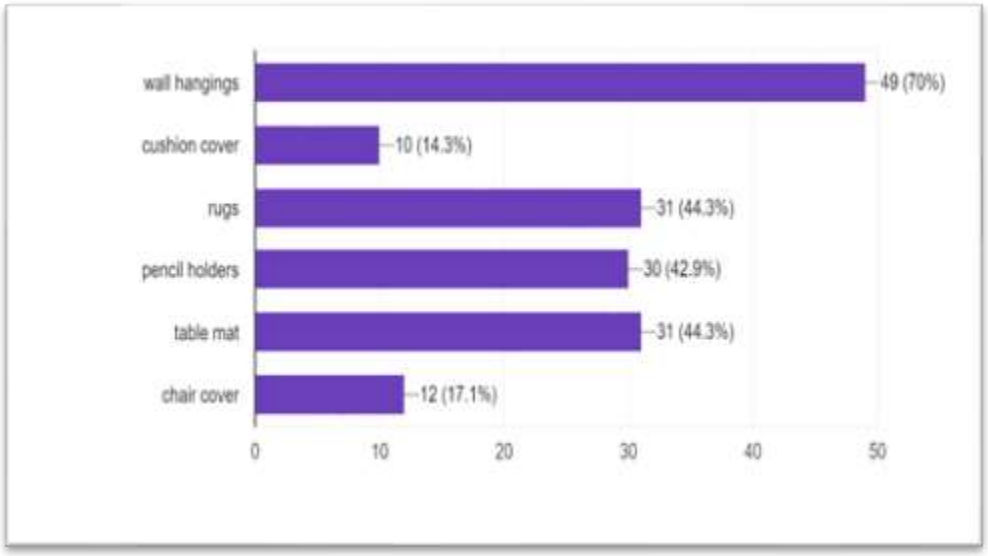
One question is related to the buying decision of the consumer depend on various factor at different rate, here 14.7% who were concerned about the durability, 23.5% who looking forward the price estimated, 29.4 % were selected by the design and 32% of people concerned about sustainability.

- **What factor would influence your decision to purchase a product made from banana fibre?**



Graph 4
Influencing factor of Banana fibre for purchasing

- **And the following question is help to select the final product to be developed;**



Graph 5
Result of selection of final product

4.2 DESIGN DEVELOPMENT

The design number ALKT03 is selected

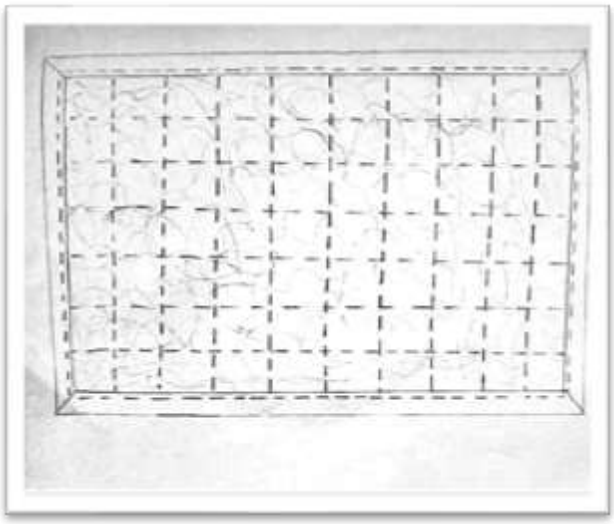


Fig No: 4
Table mat design

The design number ALKR01 is selected

Fig No: 5
Rugs design

The design number ALKW3 is selected

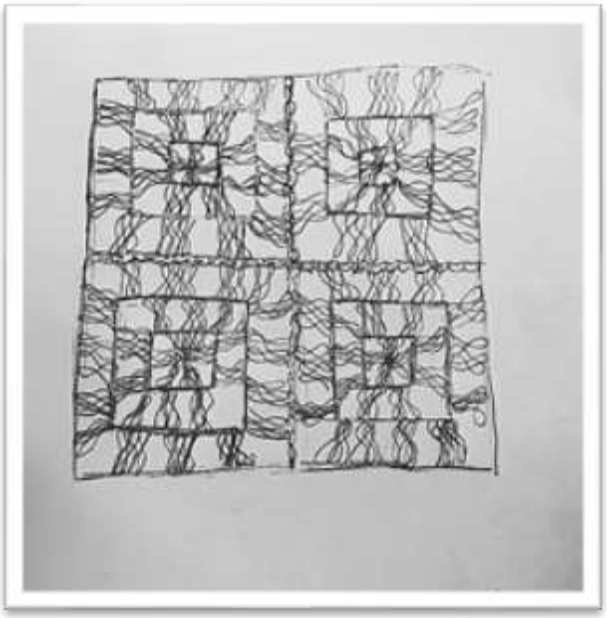


Fig No: 6
Wall hanging design

4.3 FINAL PRODUCT

Banana fibre was extracted and made home décor item from banana fibre. And the three products are developed according to the survey. The development of products using different methods that are stitching, braiding, and crochet. The developed products are:

Fig No. 7
Rugs

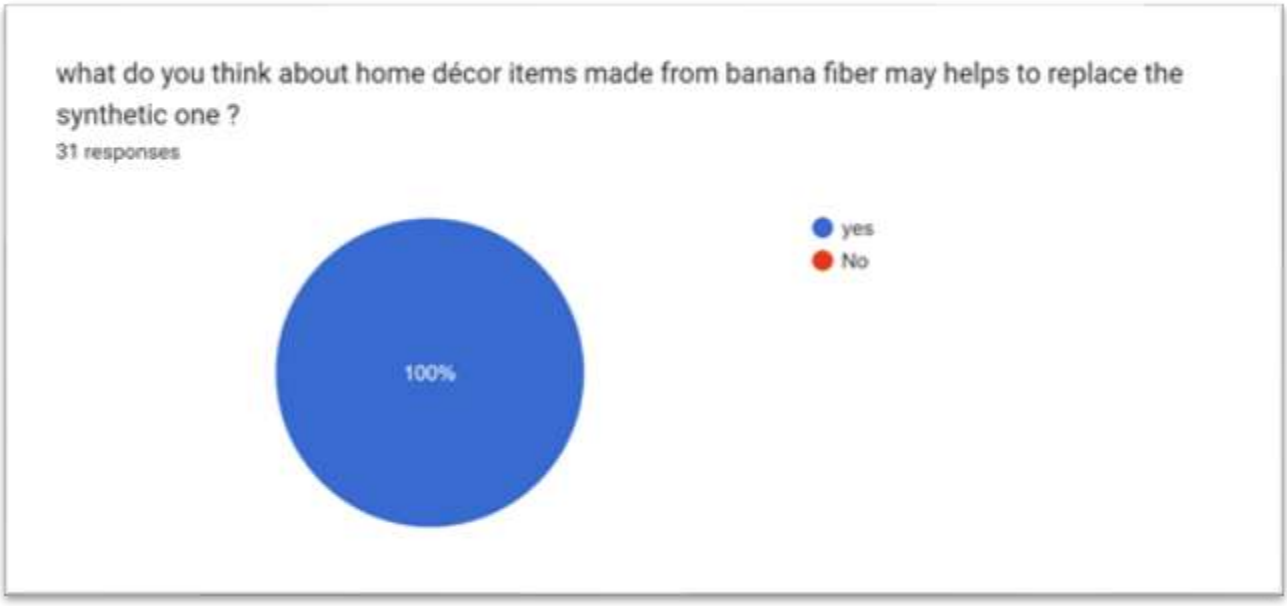
Fig. No. 8

Table mat

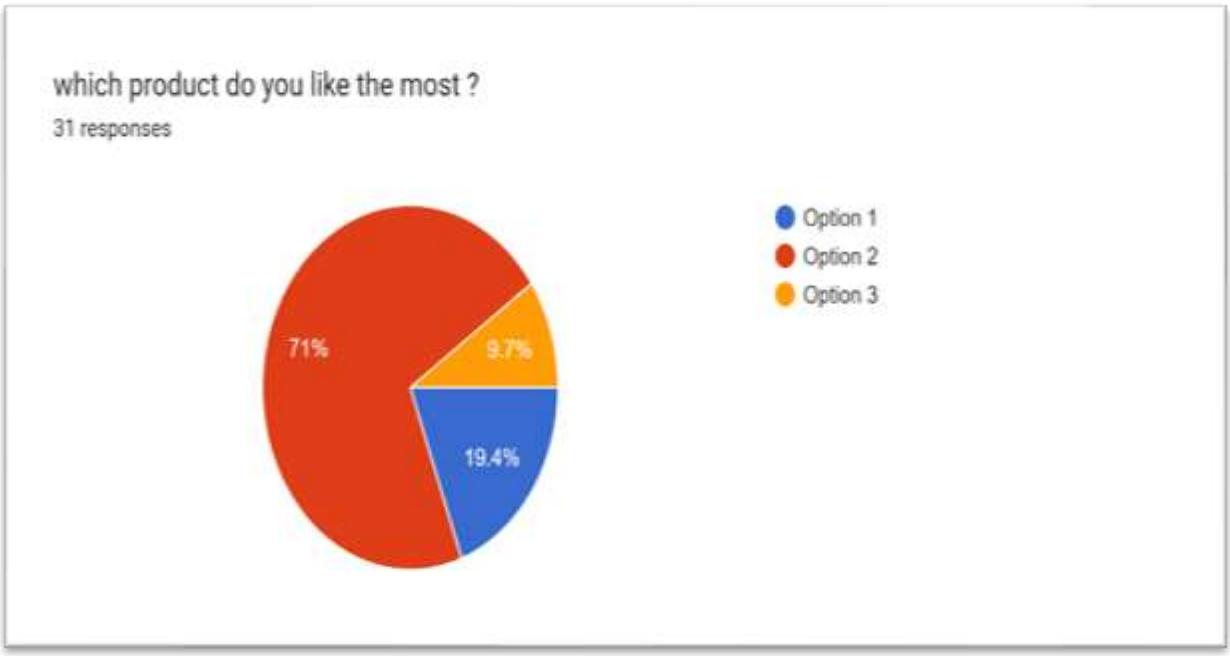
Fig. No. 9
Wall hanging

4.2 Evaluation of Developed Products

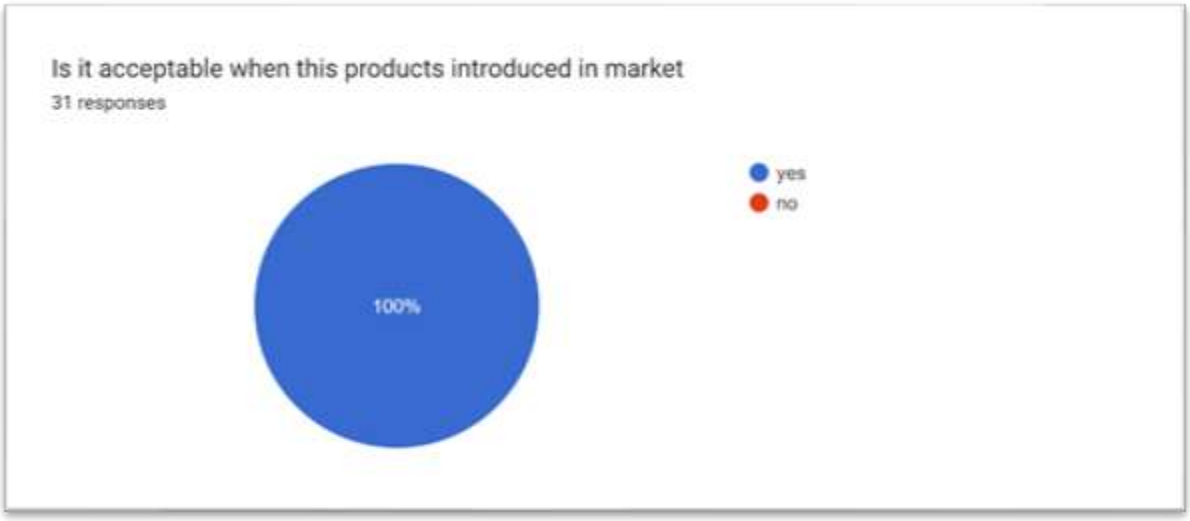
The developed home décor items made from banana fibre for replacement of synthetic products. The product evaluated for Replacements of synthetic products, Preference of the product, acceptance, design and texture.



Graph 6
Replacement of synthetic



Graph 7
Most liked product

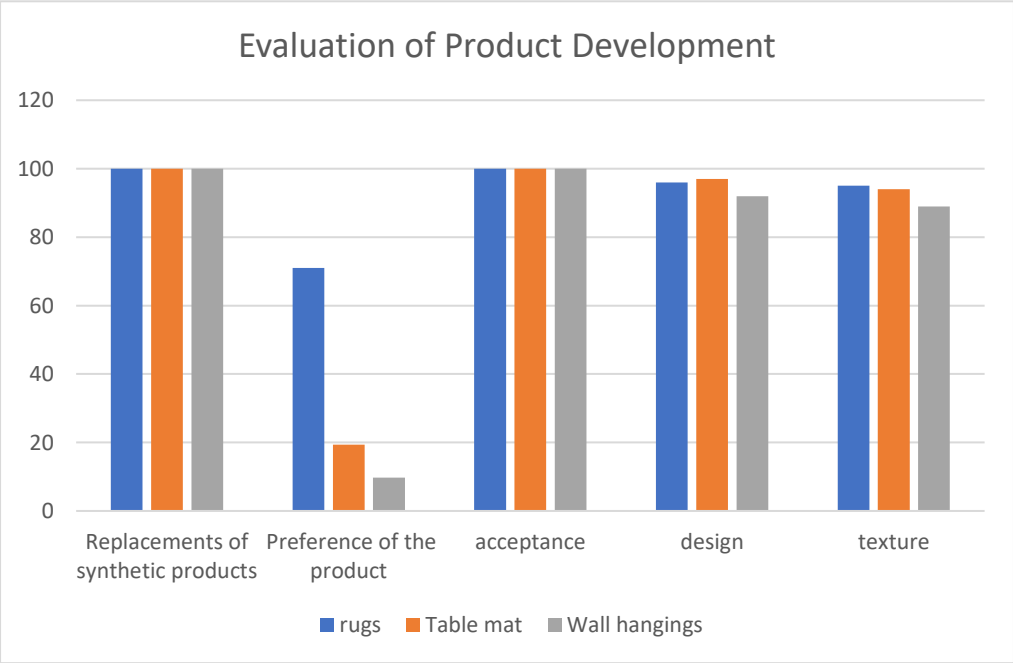


Graph 8
Acceptancy

Products	Replacements of synthetic products	Preference of the product	acceptance	design	texture
rugs	100	71	100	96	95
Table mat	100	19.4	100	97	94
Wall hangings	100	9.7	100	92	89

TABLE 1

Out of total responses for the survey, the developed products made by banana fibre. The evaluation-based on replacement of synthetic products, preference of the product, acceptancy, design and texture.



Graph 9
Evaluation of the product

4.5 COSTING OF THE DEVELOPED PRODUCTS

Product	**cost**
Table mat	150
Rugs	60
wall-hanging	100

TABLE 2

SUMMARY AND CONCLUSION

5. SUMMARY AND CONCLUSION

The goal of the project "**Banana Fibre into Home Decor Item**" is to investigate banana fibre's potential as a cost-effective and adaptable material for making a range of home décor items. The project will entail investigating the methods of cultivating and extracting banana fibre, examining the distinct characteristics of banana fibre, and testing various approaches to create a variety of home décor items, including wall hangings, table mats, rugs, and ornamental pieces. The study will also look into the economic effects of using banana fibre on communities that cultivate bananas, as well as the advantages it has for the environment. The project's ultimate goal is to encourage the use of banana fibre in home décor using innovative and ecological methods. Additionally, this project's goal is Making crafts gives one a way to express gratitude and enhances self-actualization, self-definition, and empowerment. Participating in arts and crafts can have a favourable effect on women's health in addition to providing social benefits. Women without jobs might also supplement their income by creating crafts.

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6. BIBLIOGRAPHY

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APPENDIX

APPENDIX 1

1. Questionnaire to know the preference for developing utility product

- How familiar are you with banana fibre as a material?
- Have you ever used or owned any product made from banana fibre?
- Are you interested in eco-friendly or sustainable home décor items?
- What factor would influence your decision to purchase a product made from banana fibre?
- Choose any three products to be made from banana fibre.

  Wall hangings

  Cushion cover

  Rugs

  pencil holders

  table mat

  chair cover

APPENDIX 2

2. Questionnaire to know the opinion about the product developed

- what do you think about home décor items made from banana fibre may help to replace the synthetic one?
- which product do you like the most?

  Table mat

  Rugs

  Wall hangings
- Is it acceptable when this product introduced in market?
- which element do you like in these 3 products?

  Colour

  Texture

  Method

  Design